



UNITED STATES ARMY
HEALTH CARE STUDIES
AND
CLINICAL INVESTIGATION ACTIVITY

CHAIRSIDE DENTAL ASSISTANTS IN
U. S. ARMY FIELD DENTAL UNITS:
A REPORT OF CONSULTATION

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INTRODUCTION

The information in this report was originally sent to the U.S. Army Training and Doctrine Command (TRADOC) in a letter dated 12 January 1988. At the time, the Army was examining the staffing of field dental units and was questioning the inclusion of chairside dental assistants in those units. Some manpower analysts were concerned that the inclusion of chairside assistants in field units represented something more than the minimum essential staffing that the Army was trying to achieve. TRADOC requested the assistance of the Dental Studies Division of the U.S. Army Health Care Studies and Clinical Investigation Activity in gathering information bearing upon the matter.

In our response to TRADOC, we examined the extent to which dental assistants have been used by the dental profession over the years. Next, we reviewed three studies that attempted to quantify the benefits of using chairside assistants. Finally, we discussed other important reasons for using chairside dental assistants--patient safety, quality of care, and infection control.

The purpose of this report is to make the results of our consultation readily accessible and a part of the public record. In 1988, the Army decided to retain chairside assistants in field units, but the question is likely to be raised again someday. Staffing is subject to periodic review, and the same questions tend to periodically recur.

DISCUSSION

Chairside dental assistants have been in widespread use for decades. Klein (1944) reported that 55.8 percent of civilian dentists were using assistants. In the Nineteen Fifty Survey of the Dental Profession, conducted by the American Dental Association (ADA), 64 percent of the respondents reported that they employed assistants. By the time of the ADA's 1979 survey of dental practice, the proportion of dentists using assistants had increased to 87.7%. Today, it is even higher. The 1986 Survey of Dental Practice, showed that 90 percent of the respondents (98 percent of the general dentists and 95.8 percent of the specialists) employed chairside dental assistants. Today, a substantial proportion of civilian dentists use more than one chairside assistant. According to the 1986 ADA survey, 42.7 percent of general dentists employed more than one chairside dental assistant, and 15.9 percent of them employed more than two.

The overwhelming use of chairside assistants by civilian dentists is compelling evidence that they make a valuable contribution to dental practice. Civilian dentists work primarily on a fee-for-service basis, and they are not in business to lose money. If chairside assistants did not significantly pay their way, they would not be in such widespread use today. Despite the economic problems that have beset civilian dental practice during the past decade, use of assistants is higher than ever. Today there is a perceived shortage of assistants--a situation viewed as a significant problem for the profession.

Exactly how much the use of chairside assistants boosts the productivity of a dentist is difficult to say. Few studies have ever attempted to quantify the difference between practicing with a chairside assistant and practicing without one. Because the value of using chairside assistants was established empirically in the marketplace decades ago, the dental profession has had little need for "scientific" proof. Most studies of ancillary personnel have examined other issues. Many examined the optimal size and configuration of the dental team. In those studies, the combination of a dentist and one chairside assistant was the baseline configuration. The use of chairside assistants was a foregone conclusion; the only question was how many. Many other studies examined the range of services that could be provided by assistants operating under the supervision of a dentist. In these studies also, the use of assistants was not questioned.

We were only able to locate three quantitative studies. Klein (1944) found that a dentist practicing with one assistant and one chair could treat 33 percent more patients per week than a dentist practicing alone with one chair. With two chairs and one assistant, the dentist could see 63 percent more patients, and with three chairs and one assistant, the dentist could see 75 percent more. Davis, McKenzie, and Hester (1963) found that a dentist practicing with an assistant could provide 68 percent more fillings per day than a dentist practicing alone. In 1971,

Kilpatrick conducted a time and motion study of six dentists and reported that they could provide single fillings 16 percent faster with an assistant than without one. With two assistants, they were able to deliver the same service 29 percent faster.

Although the three studies that we found show that large gains in productivity are possible, they don't offer any single universal answer to the question of how much. Because of the vast differences between the studies, they can't be directly compared. Klein surveyed a large number of civilian dentists who were providing comprehensive care to patients of all ages; he measured total patients treated per week. Davis et al. (1963) used four relatively inexperienced dental officers (8 to 12 months clinical experience) and examined the number of fillings that they could perform per day on specific teeth. Kilpatrick studied six civilian dentists, but measured the time required to place one particular type of filling.

The three studies focus primarily upon productivity; productivity alone, however, is not the only reason for using assistants. Another very important reason is patient safety. A dentist working alone must try to perform a dental procedure while simultaneously performing other tasks such as retracting tongue and cheeks or suctioning saliva and blood. Because of the difficulties of trying to balance the multiple tasks, practicing without an assistant occasionally results in lacerations of the lips, gums, tongue, or cheeks--sometimes serious ones. Trying to do everything with only two hands occasionally leads to even more serious complications, such as the aspiration of small objects or an injury to an eye.

The quality of care can be affected in many ways by practicing without an assistant. The difficulty of trying to see, suction, and retract at the same time can make the extraction of tooth or bone fragments difficult to impossible. The management and suturing of oral wounds and surgical incisions is often made extremely difficult without adequate irrigation, suctioning, and retraction. The drilling of bone--necessary in some extractions and other types of surgery--can lead to problems unless someone is present to simultaneously irrigate the bone during the procedure. Finally, none of our filling materials, permanent or temporary, do well when mixed with blood or saliva. Mixing and placing a filling, while at the same time keeping the tooth clean and dry, is a task that can defeat the best of jugglers.

Another extremely important reason for using dental assistants is infection control. To avoid cross contamination between patients, a dentist practicing alone must unglove and wash before reaching for materials not immediately at hand, then wash and glove again before returning to the patient. Otherwise equipment sets, and supplies become contaminated by saliva and blood. This brings treatment to a total stop for an unnecessarily long time. With one assistant, only the assistant needs to go through the extra procedures, and the delay is not as great. One of the major reasons why some civilian dentists employ extra

assistants is so that the basic team of dentist plus chairside assistant can work without interruption while the second assistant gets or mixes needed materials. The potential for spreading disease is not a theoretical concern. Unfortunately, the dental literature periodically demonstrates that dental practices can spread infectious diseases, such as hepatitis. Dentists in TOE organizations may well be practicing in parts of the world where such diseases are endemic and pose a major threat to an army.

Is one chairside assistant per dentist necessary, or can they be shared? The answer is that they can't be effectively shared by two dentists practicing at the same time. A chairside assistant is as contaminated by the patient's saliva and blood as the dentist and can't move from patient to patient without scrubbing and regloving. Any assistant that could effectively remain uncontaminated would be of limited usefulness. Holding suctions, retracting tissue, and transferring used instruments all require exposure to the patient's body fluids. Jumping back and forth between patients would result in more washing than assisting.

The use of a single chairside assistant is certainly not extravagant. A sizable segment of the civilian dental profession has voluntarily chosen to employ more than one chairside assistant per dentist. Kilpatrick's study showed a distinct gain in efficiency with a second assistant. Also, Baird, Covey, and Protheroe (1967), in a study of the optimal configuration for dental clinics of the Royal Canadian Dental Corps, showed that the ideal configuration, at least for large clinics, consisted of considerably more than one dentist and one assistant. They found the ideal to be "one clinical supervisor and two clinical assistants . . . in support of a single dental officer."

CONCLUSION

Removing chairside assistants from field dental units does not make sense from a manpower standpoint. It amounts to trading expensive labor for inexpensive labor. A given amount of workload in the field can be accomplished either by dental officers practicing with chairside assistants or by a greater number of dental officers working alone. Although the extent of the trade-off between dental officers and dental assistants is difficult to precisely quantify, there is ample evidence to suggest that it is substantial. The use of chairside assistants appears to be a preferable approach considering the relative costs of dental officer and dental assistants in terms of salary, training, and replaceability.

Removal of chairside assistants also does not make sense from the standpoint of the patient or the Army. To the extent that dentists are slowed down by a lack of assistants, patients are slowed in returning to duty. To the extent that practicing without assistants contributes to results that are unsatisfactory or that do not hold up, needless patient visits are generated. And to the extent that practicing without an assistant results in injuries to patients, the dental unit fails in its mission. Dentists are placed in the field to help soldiers and return them to duty, not to injure them.

BIBLIOGRAPHY

- Baird, K. M., Covey, G. R., & Protheroe, D. H. (1967). Employment of auxiliary clinical personnel in the Royal Canadian Dental Corps. Journal of the Canadian Dental Association, 33, 184-191.
- Bureau of Economic Research and Statistics. (1950). Nineteen fifty survey of the dental profession. II. The dentist and certain aspects of his training and practice. Journal of the American Dental Association, 41, 376-382.
- Bureau of Economic Research and Statistics. (1979). The 1979 survey of dental practice. Chicago, IL: American Dental Association.
- Bureau of Economic Research and Statistics. (1986). Employment of Dental Practice Personnel. The 1986 survey of dental practice. Chicago, IL: American Dental Association.
- Davis, W. V., McKenzie, R. E., & Hester, W. R. (1963). The effect of ancillary personnel on the treatment capability of a USAF dental officer. (Report Number SAM-TDR 63-35). San Antonio, TX: USAF School of Aerospace Medicine.
- Kilpatrick, H. C. (1971). Production increases due to chairside assistance. Journal of the American Dental Association, 82, 1367-1372.
- Klein, H. (1944). Civilian dentistry in war-time. Journal of the American Dental Association, 31, 648-661.